Practical Design
75/25
Spl. +

CONSTRUCTION VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

Date 15 AUG 08

Contract ID 080229-X01 Job No. J0P0931

County Wayne Route US67 Original Bid Cost $35,413,759.63

Contractor Flynn Company, Inc. By Mike Flynn

Designed By Dan Streicher / Steve Bubanovich Phone 563.556.5334

VECP 08-72

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

See comments below

2. Estimate of reduction in construction costs. $18,080.00
3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

See comments below

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

N/A
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

N/A **(date)** N/A **(effect)**

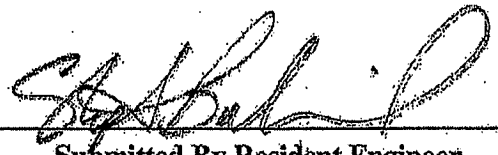
6. Dates of any previous or concurrent submission of the same proposal.

27 JUN 08
(date and/or dates)

This proposal was originally submitted with the intent of eliminating both the flowable backfill and CMP pipe inserts at existing box culverts at stations 880+26 and 736+02.5, and was denied based on earlier structural analysis.
Further review and discussions have revealed a portion of the proposal is acceptable for the installation at station 736+02.5. The downstream portion of this culvert, an 8X6 RCB, is in very good structural shape, exhibiting no visible cracking, spalling, or other problems. This portion of the culvert will not be subjected to additional loadings and therefore will not need the additional structure reinforcements contained in the original design.

*** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:
I recommend this revised proposal be accepted for the installation at Station 732+02.5 and the contractor be allowed to capture 25% of the savings as a Practical Design Value Engineering Proposal.



Submitted By Resident Engineer — **15 AUG 08** **Date**

Comments:

☒ Approval Recommended
☐ Rejection Recommended

Mark Shelton by P. Ricker — **District Engineer** — 8-18-08 **Date**

Comments:
Agree w/ RE.

☑ Approval
☐ Rejection

David D. Gaines — **State Construction and Materials Engineer** — 9-2-08 **Date**

Distribution: Resident Engineer, Project Manager, District Operations Engineer, State Construction and Materials Engineer
*Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102

RTE. US67 CO. WAYNE LOC. STA 736+02.5 AUTHOR SH

JOB NO. 080229-X01 SUBJECT VECP #1 - RE-SUBMITTAL CHK.

ORIGINAL DESIGN

LINE 1080 - FLOWABLE BACKFILL
132.0CY @ $129.00/CY $16,894.00

LINE 1140 - 30IN PIPE GROUP B
177LF @ $36.50/LF $6,460.50

TOTAL ~ $23,354.50

MODIFIED DESIGN

LINE 1080 - FLOWABLE BACKFILL
9.0CY @ $128.00/CY $1,152.00

LINE 1140 - 30IN PIPE GROUP B
113LF @ $36.50/LF $4,124.50

TOTAL ~ $5,276.50

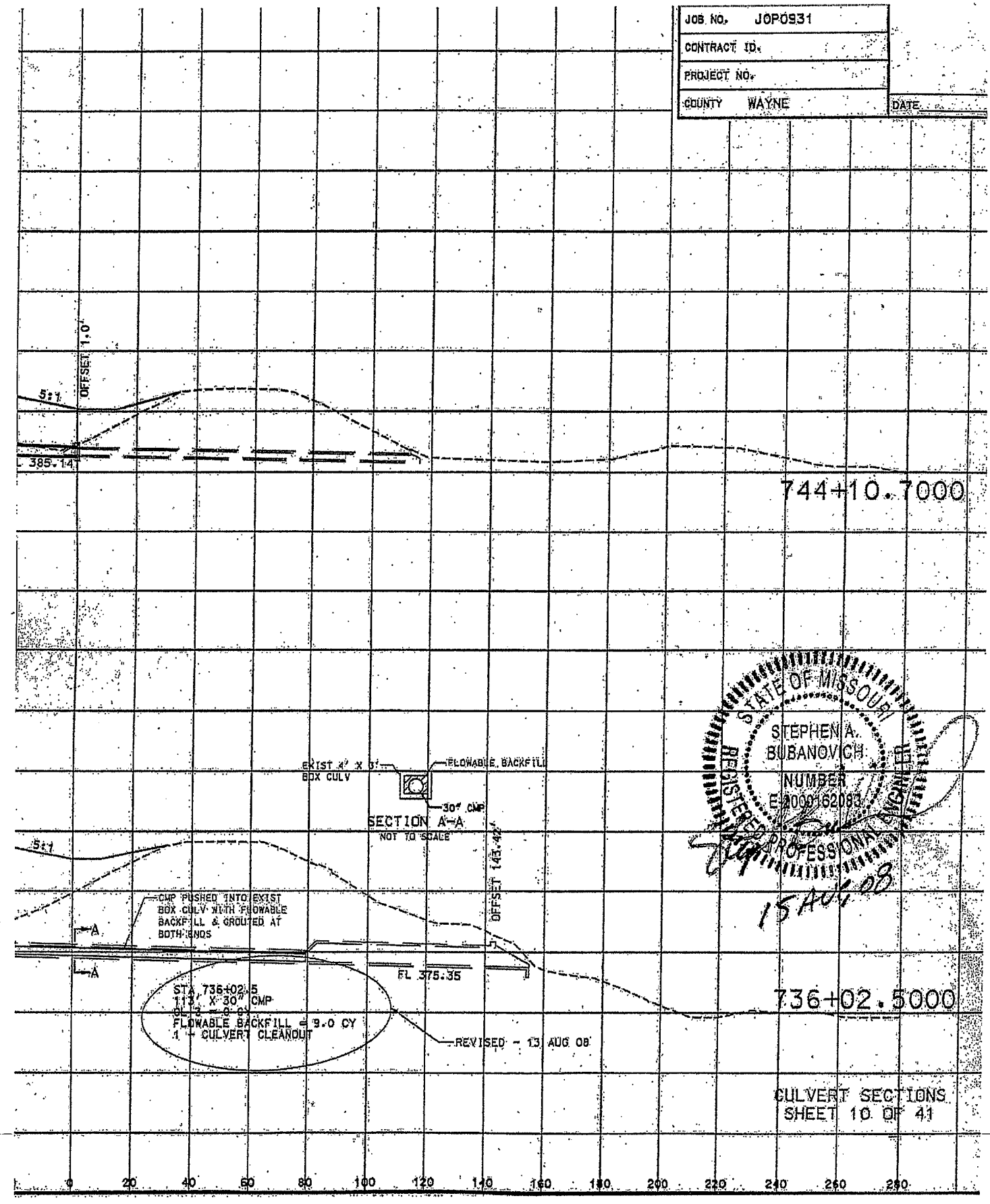
ORIGINAL ~ $23,354.50
MODIFIED ~ $5,276.50

TOTAL SAVINGS $18,080.00

75% W.DOT SHARE ~ $13,560.00

25% FLYNN SHARE ~ $4,520.00

JOB NO.	J0P0931
CONTRACT ID.	
PROJECT NO.	
COUNTY	WAYNE
DATE	



STATE OF MISSOURI
STEPHEN A. BUBANOVICH
NUMBER E-2009162083
REGISTERED PROFESSIONAL ENGINEER
15 AUG 08

CULVERT SECTIONS
SHEET 10 OF 41

Stephen A Bubanovich/D10/MODOT
08/15/2008 03:28 PM

To Lynelle S Luther/D10/MODOT@MODOT, Brian A Williams/SC/MODOT@MODOT, Thomas E Allen/SC/MODOT@MODOT
cc Tammy M Hefner/D10/MODOT@MODOT, Jerrod Jernigan/D10/MODOT@MODOT, Andrew L Meyer/D10/MODOT@MODOT, Deborah K
bcc
Subject REVISED VECP#1 J0P0931 - box culvert modifications

Lynelle, Brian, & Tom,

We have revisited this matter and have made a decision to incorporate part of this VECP. Tammy Hefner and I evaluated the existing structure at station 736+02.5 and found it to be in very good condition. We have made a field change, with Designs' approval, to eliminate the pipe and flowable backfill on the 8X6 portion of this culvert.

I have attached a revised submittal of this previously denied VECP. The revision asks for the contractor to be allowed to capture 25% of the savings in a Practical Design VE proposal. I have included a cost breakdown and revised drawing showing the new features we are building at this location. I will wait for the completed VECP for prior to issuing a Change Order.

The attached emails offer a little more explanation to this decision.

VE J0P0931 Box Culv.pdf

Thanks,
sab-

Andrew L Meyer/D10/MODOT

Andrew L Meyer/D10/MODOT
07/03/2008 12:16 PM

To Thomas E Allen/SC/MODOT@MODOT
cc Brian A Williams/SC/MODOT@MODOT, Keith J Ferrell/SC/MODOT@MODOT, Lynelle S Luther/D10/MODOT@MODOT, Stephen A Bubanovich/D10/MODOT@MODOT, Tammy M Hefner/D10/MODOT@MODOT, Dean D Franke/SC/MODOT@MODOT, Jason M Williams/D10/MODOT@MODOT, Jay W Trammell/D10/MODOT@MODOT, Gretchen F Hanks/D10/MODOT@MODOT
Subject Re: VE J0P0931 - box culvert modifications

That is a very good question.

I feel that 88026 needs to stay the way we designed it for the very reason you mentioned: the inlet. I wouldn't be opposed to sealing the grout at the inlet end with a concrete cap and paying for it as an

additional collar.

The existing box culvert at STA 73602.5 includes an 8'x6' segment from the original road construction that was previously extended with a 4'x3' box in the early 40's. If you look at the embankment it becomes evident that the last time this box was extended the fill was increased over the 8'x6' segment. We began to ask ourselves if there was the possibility that this box might already be overloaded in a similar fashion to what we are trying to avoid with our new construction (which Dean Franke thankfully caught on the new pipes during the design process). Maintenance generally doesn't have the resources to deal with 90 year old partially collapsed box segments under 30 feet of fill. We thought that since we were there with a contractor it might be a good idea to extend the liner through the box segment constructed in the 1920's and take care of any problems that would eventually occur with future increases in traffic loading (can anybody say increased commercial truck traffic?). Using a CMP and flowable backfill to accomplish this was the most economical solution we could come up with, and it is substantially reasonable in comparison to staged construction w/engineered sheet piles walls and box replacement.

I suppose if someone would be willing to get in the circa 1927 8'x6' segment and determine if any observed cracking is due to serviceability issues or overloading from additional fill and then perform the structural calculations to support leaving it alone, taking into account future increases in traffic, I would be willing to go along with under-running the length of CMP and backfill by stopping at the 4'x3' transition to a 8'x6' and forming a wall at that location to hold the backfill. Whoever completes that analysis would probably want to seal that sheet.

The other option previously mentioned for each of these locations, installation of lightweight fill, was estimated at several hundred thousand dollars more and involved engineering issues that would have slowed the construction down considerably.

SAFE & SOUND

D10 Safe & Sound Contact

Andy Meyer, P.E., NSPE
Project Manager
Ofc # 573.472.5296
Cell # 573.703.4526
Andrew.Meyer@modot.mo.gov

Thomas E Allen/SC/MODOT

Thomas E Allen/SC/MODOT
07/03/2008 11:29 AM

To Stephen A Bubanovich/D10/MODOT@MODOT, Keith J Ferrell/SC/MODOT@MODOT
cc Andrew L Meyer/D10/MODOT@MODOT, Brian A Williams/SC/MODOT@MODOT, Lynelle S Luther/D10/MODOT@MODOT, Tammy M Hefner/D10/MODOT@MODOT
Subject Re: VE J0P0931

I agree w/ rejecting the VECP as per the reasoning in attached note- but, I counter w/ this- can we underrun the length of pipe- just put it where the culvert has added fill- not the entire culvert? For instance- @ sta 736+02 use 70', not 177', @ sta 880+26, use 85', not 131', @ this location the grouted end would be the inlet side, we may need to do something extra here.

To me, this idea addresses purpose & need and provides the basic function we are trying to accomplish, no more, no less. Am I missing anything?

Keith- please review, then let's discuss.

TEA

Stephen A Bubanovich/D10/MODOT

Stephen A Bubanovich/D10/MODOT
07/02/2008 03:38 PM

To Brian A Williams/SC/MODOT@MODOT, Lynelle S Luther/D10/MODOT@MODOT, Thomas E Allen/SC/MODOT@MODOT
cc Tammy M Hefner/D10/MODOT@MODOT, Andrew L Meyer/D10/MODOT@MODOT
Subject Re: VE J0P0931

Attached are plan sheets for your reference.

sab-

[attachment "217.pdf" deleted by Stephen A Bubanovich/D10/MODOT]
[attachment "207.pdf" deleted by Stephen A Bubanovich/D10/MODOT]
Stephen A Bubanovich/D10/MODOT

Stephen A Bubanovich/D10/MODOT
07/02/2008 09:33 AM

To Lynelle S Luther/D10/MODOT, Thomas E Allen/SC/MODOT, Brian A Williams/SC/MODOT
cc Andrew L Meyer/D10/MODOT@MODOT, Tammy M Hefner/D10/MODOT@MODOT
Subject VE J0P0931

All:

Attached is a VE proposal from Flynn Companies regarding to box culverts. I have instructed the contractor we cannot do their proposal.

The two existing box culverts were designed based on the loadings they would experience from the original fills. The expansion of US67 to four lanes adds considerable fill material to both culverts, overstressing the structures. The original design incorporated "lightweight fill" in these locations. This method was very costly and a alternative design was chosen by our design staff in close consultation with Bridge. The resulting design incorporates a CMP liner pushed through each culvert and the resulting void filled with flowable backfill. This design eliminated the need for "lightweight fill" and saved the taxpayers several thousands dollars.

If you need any other information, please call at 573.840.9781 or 573.429.7727(cell)

sab-

[attachment "VE J0P0931.pdf" deleted by Stephen A Bubanovich/D10/MODOT]

Practical Design
75 MoDOT
25 Contractor

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- X Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- ☐ Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

This is a practical design VE proposal. This leaves in place a portion of a Reinforced Box Culvert and eliminates a portion of the designed Reinforced Concrete Pipe and Flowable Fill.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

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